

Tufted Pochard—Not at all common. Occurs occasionally in recent shikar records from November (5th) to March (11th). Small parties.

Great Crested Grebe—Winter visitor. Uncommon. Seen on River Jumna in December (10th) and noted in shikar records as occasionally occurring on large jheels during the cold weather.

N. F. FROME

30.—MORTALITY WITHIN NESTS OF TROPICAL BIRDS

In his article on Bird Life in an Assam Jungle, Betts (*J.B.N.H.S.* 46:669) states that 'the casualties . . . were positively catastrophic and must surely have been exceptional.' He speculates that giant squirrels and monkeys on the area could have been responsible. The losses, it must be admitted, are catastrophic, as in the case of all six nests of *Otocompsa emeria* which were destroyed. The writer has had similar discouraging results at Barro Colorado Island in the Panama Canal Zone where nests of passerine species or of hummingbirds were more often than not, robbed before hatching. Betts's findings sound remarkably analogous to the fate of nests of a species like *Thamnophilus punctatus*, an ubiquitous bird of the Panama rain forest. In both cases the percentage of failure is relatively enormous, although the species concerned probably are not in danger of diminution. Thus, it would appear that, beset by numerous predators, the breeding adults lose many eggs and nestlings but are as adults relatively free. My point is that the high loss of nests in the tropics may likely be found, not exceptional, but quite normal.

There has been so little work on life histories of birds of the lowland tropical rain forests that bird watchers find it difficult to accept the tremendous losses as a normal situation. Still, our colleague in India may compare notes with no less an authority than Dr. Alexander Skutch who writes (*Sci. Monthly* 51: 506) that in lowland rain forests in Panama six out of every seven nests studied were prematurely destroyed, but that on the other hand, in the high mountains of Guatemala 55% of the nests produced at least one fledgling! Losses in the lowlands are due to monkeys, Swainson's Toucans but mostly to snakes. To ascertain quantitatively the causes of high nest predation is a challenging field of study for those ornithologists who reside in lowland tropics.

EASTERN OREGON COLLEGE,

LA GRANDE, ORE., U.S.A.

CHARLES W. QUAINANCE

March 8, 1948.

31.—MY EXPERIENCE WITH PHEASANT BREEDING IN DHARMSALA CANTONMENT.

In my capacity as Honorary Secretary of the N.I. Association for the Protection of Wild Life, I felt it incumbent on me to work

out ways and means for increasing 'game' which bid fair to be very fast depleted.

I very soon realised that whereas protection through Game Laws, and the resultant punitive measures, was the normal way to stop the excessive slaughter of game, it was only effective in so far as it dealt with the protection of birds during the breeding season. For the rest, the taking out of licences to shoot merely had the effect of putting money which accrued from the sale of licences, into Government coffers but was completely useless from the point of view of protection. It only meant that if the vigilance of forest guards and game inspectors was sufficient to make poaching a very risky proceeding, combined with the co-operation of magistrates who were prepared to give deterrent sentences, then the erstwhile poacher became an honest man, paid his fees and became a licensee.

If on the contrary guards and inspectors were not difficult to get round, or the magistracy was very much of the *mehrbani* type and thought a nominal fine of Rs. 2 covered a venial offence, then very obviously the poacher remained a poacher, and saw no reason why he should pay Rs. 5 or Rs. 8 for a shooting licence, when he could shoot more or less with impunity for nothing, or at most, run a very small risk of being challaned and fined Rs. 2.

However, whether a poacher remained a poacher, or became a licensee, made only a small difference to Government coffers, but not one iota of difference to the unfortunate game, as in either case the poacher and the licensee were 'killers' under different names.

There you have the whole crux of Game Preservation in India, so a department of Government using punitive measures to protect game is only out to alienate the sympathies and confidence of the public, for however carefully run, abuse of power is certain to follow in its wake and one such abuse will counteract the effect of many benefits in the public mind.

What then is the remedy?—Breeding birds to increase their numbers.

If this is done on a large scale the effect is two fold, or even three fold, viz:—(a) You can keep your licence fees low and still give the licensee his heart's desire in the large increase of game to shoot. (b) You can breed game separately for hotels and hostels which are, now, the largest source of destruction, paying, as they do, high prices for game and thus inducing netting and noosing on a very large scale. (c) You are winning the confidence of the public as a Government that is really out to do something, to hand over to posterity as good or better conditions than it inherited from the last Government.

Finally, if Government could see their way to give to the zemindar the right to the game found on his own property, an interest would be established which would do more for birds and beasts than anything else.

If then we accept the axiom that breeding is the only way of really increasing game it is necessary, in the first place to see how we should go about it. I began with Kalij pheasants as these were

the common pheasants of the district and best suited to the height at which I wished to try my experiment. I propounded my scheme to the Committee of the N.I.A.P.W.L. and the Association met me half way and agreed to pay for the pen I proposed to put up. Very fortunately I had exactly the type of land I wanted in my own grounds, viz.:—fairly well drained terraces covered with oak trees and oak scrub. Since pheasants perch on trees at night, it was obvious that perching branches, some 12 to 15 feet above ground, must be fenced in. I selected a site about 100 ft. by 30 ft., on which even the monsoon rains could not lie, and erected a wired-in pen to take in the whole area selected. Right round the whole area the wire netting was of $\frac{1}{2}$ inch diameter to keep out possible snakes and rats. This extended some 6 inches inward, along the ground and 2 ft. 6 in. upward, above the ground. The next layer of 3 ft. width was interwoven on to the top of the original small mesh wire, and was itself of $1\frac{1}{2}$ in. mesh, you thus had the sides of the pen 5 ft. 6 in. in height, to enable a man to walk about inside, when necessary, with comfort. Just where the roosting perches are to be, the sides must be raised considerably so that the top netting will cover them with nearly 2 ft. to spare, and for the rest the netting on top will remain 5 ft. 6 in. from the ground, and running up to possibly 12 to 15 feet over an area of say 10 ft. \times 8 ft. where the birds perch.

It is not sufficient to merely have the perching branches in evidence at 12 ft. or so above the ground, but young scrub and lower branches coming down almost to the ground, so that later on the chicks can hop up from branch to branch and roost with their parents. Having satisfied yourself that your pen is just what is needed to keep your birds in, and at the same time to keep out rats, mongooses and snakes, you look well over the inside of the pen. If you have an old terraced field where the pen has been erected, then on the upper side you will have the remnants of an old wall and if no such thing exists, then you must build up an earthen butt say 3 ft. high and 6 ft. long with the upper side built up with earth and stones and covered with slate to keep out the rain. Into the face of this butt insert two or three hatching boxes, made of wood a foot long and the same in height and breadth, but with the front side cut away to within 2 in. of the bottom to give free passage to the sitting hen. If this box is plastered with greyish or brown colouring to represent a hollow in a boulder so much the better. A little earth at the bottom and on it a few blades of grass will constitute a sufficient nest for the eggs to be placed. It is essential that these boxes should be let in deep into the butt so that they are dark inside and not subject to a glare, and just high enough from the ground to be above any water that may lie. A couple of large projecting boulders within the pen would supply natural nests for the birds, the only condition necessary being they are well covered from the rain, i.e. the nest below them would be rain proof and the surrounding ground below the level of the nest.

A cock and four or five hens would produce by the end of June or early July, an average of 12 to 13 eggs per bird. Do not let

curiosity kill the cat. You will soon know that eggs have been laid by the birds not being keen to come out for their food when thrown in for the first day or so. Thereafter the eggs will not hatch out on the 21st day as in a fowl but on the 25th day, and thereafter the pen will be alive with the most active little chickens you have ever seen. The parents will look after them and you need not worry yourself in the least bit, except to give them their food regularly.

Feeding and cleaning the pens.—The man who is to look after the birds must be a person with a little common sense, and it must be dinned into his head that he is dealing with very shy and nervous birds, hence his every action must be slow and deliberate so as not to frighten the birds. He should begin to sweep out the pen on the side opposite to where the pheasants have collected on his arrival, then work very slowly round and the birds will run on ahead of him. If this is done daily the birds will get quite used to him in a week or so, especially if he feeds them as soon as he has finished sweeping. The grain, wheat, bajra, mukki, barley and rice should all be tried mixed together. You will soon see which, if any, they discard and which they like best and act accordingly. A handful per bird in the morning and the same in the evening, with a feed of *choker* (bran) mixed with raw meat, or better still, worms, at midday.

Pheasants, both grown up and chicks enjoy all kinds of worms and insects and if you have any water channels that are very often dry you may find under the surface, some 2 to 3 inches down in the mud, the grub of the crane fly or as the fly is commonly called daddy-long-legs, which they will devour greedily, also the grubs of all beetles. By giving them this diet you help your pheasants as well as your garden, as the crane fly grub is most destructive. I used to give a couple of *chokras*, the sons of my servants, for every cigarette-tin full they brought me As. 2, every second day. Accustom them to this diet gradually and do not give too many to start with.

If wild pheasants are to be found in the vicinity it may become necessary to erect a wire fence a couple of feet away but all round your pen as the wild cock is certain to come round and challenge your bird and the fight is a very serious one, even with wire between and I have had my pheasants eyes put out, on one occasion, and was able to catch the wild one, whose head was cut to pieces and he was too exhausted to fly away when I approached.

The above pens can be improved upon and enlarged a hundred-fold if required. The only *desideratum* is that two cocks do not get together so there should always be a partition in between the pens. A cock can accommodate half a dozen hens.

If it is intended to breed pheasants on a very large scale then the above method is uneconomic. In that case you have a large enclosure, preferably with a stone or mud wall all round and covered by wire netting above, to keep the pheasants from getting out and kites and other predatory birds from getting in. The

pheasants should not be allowed to build nests but encouraged to lay their eggs on the ground. Every evening these should be picked up and ultimately, when you have enough, put into an incubator to hatch out. In this way each pheasant will lay up to 20 or more eggs, instead of the usual 12 or 13. When the chickens are hatched they should be handed over to a brooding fowl which has been introduced into a separate pen and kept in a coop with bars in front through which the chicks can run in and out but the fowl cannot.

Thus the chicks will soon learn to run to the foster mother hen when she calls them and she will keep them warm at night.

PARTRIDGES.

For grey partridges the procedure would be somewhat similar but the pens need not be so high, and 5 ft. should be ample. The ground should be covered with brushwood under which the birds can not only get plenty of shade but cover from birds of prey. In fact it would be wise to place grass over the upper layer of wire netting. A number of partridges in a pen might very easily panic should a hawk attack from above, and a panic among them might very easily mean the death of several, as they are very strong fliers and one going into the wire netting at full speed would easily break its neck.

Choose a place where there are white-ant nests. These will provide the young with that very desirable food—white-ant ova. Be very careful from observation of a day or two previous to building your pens that the white-ant castles do not harbour a cobra or two, or your partridges will be devoured before they get going, and the eggs will disappear as soon as they are laid. Also make sure the place is not infested with rats. If there is water on it, or flowing through it so much the better.

It might be worth your while planting a little wheat or other grain on one side of the pen to ensure green food which is very necessary for both partridges and pheasants.

Hang a lantern near the middle of the pen. This will attract insects at night and give the birds a small supply of live food.

For the rest a little experience will provide more material than 20 pages of writing from me. Always remember that the birds, both partridges and pheasants should not be frightened unnecessarily and the tamer they become the better mothers and layers they will make. Always approach cautiously, throw in their grain or whatever food they are getting and walk slowly away. In a short time they will get over their fear of man and look forward to the keepers approach as it means food and drink. Use your common sense in all matters.

25th February, 1948.

C. H. DONALD

32.—PARAKEETS ATTACKING A SNAKE

At 11 a.m. on 15th December 1947, while walking along a road in Poona Cantonment, the vociferous screeching of parakeets (*Psittacula krameri* Scopoli) attracted attention. The cacophony of